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VK metha
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Synchronous motors are so called because they operate at only one speed, i.e. the speed of the rotating field.

What is back E.M.F. in synchronous motor?

Supply is given to motor then rotor rotates at synchronous speed. The situation has now become that stationary conductor placed in a rotating field of the rotor so there will a EMF in stator due to rotation of rotor. This is known as BACK E.M.F.

In ideal machine, Back EMF will be equal to supply voltage.

Motor on Load

In D.C. motor and induction motors, an additional causes speed to reduce which reduces counter E.M.F. so that current drawn increases.

This cannot happen sych motor because it runs at a constant